

Ship Wed 12/12

Dart Aerospace Ltd.

50

Date: Monday, 12/10/2007 12:05:20 PM
User: Kim Johnston

Process Sheet

Customer	CU-DAR001 Dart Helicopters Services	Drawing Name	SHORT STEP ASSEMBLY
Job Number	36239	Part Number	D2351-042
Estimate Number	11999	Drawing Number	D2351 UNDER REVIEW RD 07.12.10
P.O. Number		Project Number	N/A
This Issue	12/10/2007	Drawing Revision	E
Prsht Rev.	NC	Material	
First Issue	/ /	Due Date	12/12/2007
Previous Run	35288	Qty:	1
Written By		Um:	Each
Checked & Approved By	07.12.10		
Comment	Est Rev:E 02.10.21 Re-format; Incorporated D2351-041 IPP K J/RF		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy bluefile and type labels as per PPP D350-591-122 CHG003

2.0	D2244116	Step Extrusion
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Comment: Qty.: 0.5000 Each(s)/Unit Total : 0.5000 Each(s)

Pick:

Qty	Part Number	Description	Batch
0.5	D2244-116	Extrusion	133733

a.m 07.12.11

①

3.0	LARGE FAB 1	LARGE FABRICATION RESOURCE 1
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Comment: LARGE FABRICATION RESOURCE 1

1-Cut D2244-128 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G
54.94"

a.m 07.12.11

TURN
OVER

① PTO

2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets. a.m 07.12.11

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

07.12.11

1

5.0	BENDING	BENDING MACHINE
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Comment: BENDING MACHINE

Bend as per dwg

① 7-12-11



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: Date: 07/12/13
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07.12.10	3.0	STEP IS TOO LONG WHEN INSTALLED ON AIRCRAFT	AB per QSS 042 07.12.10	SHORTEN LENGTH BY 0.393" @ 99° CUT LENGTH IS NOW 54.94" (SEE ATTACHED PICTURES)	07-12-12 07-12-12		AB per QSS 042 07.12.10	07-12-12

NOTE: Date & initial all entries

Date: Monday, 12/10/2007 12:05:20 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 36239

Part Number: D350591122

Job Number:



Seq. #: Machine Or Operation:

Description :

6.0 QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

12/07/12

7.0 D28502

End Bracket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2850-2	End Bracket	B29849

8.0 LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Bevel Fwd and Aft end for welding

12/07/12

2-Weld Aft End Bracket per QSI 004 & Dwg D2351 using Welding Jig DT8033

A/R Aluminum Rod M105844

12/07/12

3-Do not Grind Flush

12/07/12

9.0 QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

12/07/12 (1)

10.0 QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

11.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

JB 7-12-12

12.0 QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

WO: _____

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services		Drawing Name: SHORT STEP ASSEMBLY
Job Number: 36239		Part Number: D350591122
Job Number: 		
Seq. #:	Machine Or Operation:	Description :
13.0	D2582 	Hi-Skid Step Leg Ass'y 
Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Pick: Qty Part Number Description Batch 1 D2582 Step Leg Assy <u>833253</u>		
14.0	MS20600AD4W3 	Cherry Rivets 
Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s) Pick: Qty Part Number Description Batch 16 MS20600AD4W3 Rivet <u>M104715</u>		
15.0	LARGE FAB 1 	LARGE FABRICATION RESOURCE 1 
Comment: LARGE FABRICATION RESOURCE 1 1-Rivet Leg Assembly as per Dwg D2351		
16.0	QC5 	INSPECT WORK TO CURRENT STEP <u>12/10/07</u>
Comment: INSPECT WORK TO CURRENT STEP		
17.0	D267334 	End Plate 
Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Pick: Qty Part Number Description Batch 1 D2673-34 End Plate <u>332404</u>		
18.0	LARGE FAB 1 	LARGE FABRICATION RESOURCE 1 
Comment: LARGE FABRICATION RESOURCE 1 1-Weld Fwd End Plate per QSI 004 & Dwg D2351 A/R Aluminum Rod <u>M105058</u>		
2-Grind end plate flush.		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/10/2007 12:05:20 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services		Drawing Name: SHORT STEP ASSEMBLY	
Job Number: 36239		Part Number: D350591122	
Job Number: 			
Seq. #:	Machine Or Operation:	Description :	
19.0	QC9	VISUAL WELDING INSPECTION 	
20.0	QC5	INSPECT WORK TO CURRENT STEP 	
Comment: VISUAL WELDING INSPECTION		07/12/12 (1)	
Comment: INSPECT WORK TO CURRENT STEP		07/12/12 (1)	
21.0	HAND FINISHING1	HAND FINISHING RESOURCE #1 	
Comment: HAND FINISHING RESOURCE #1 Touch up Alodine		07-12-12 (1)	
22.0	POWDER COATING	POWDER COATING 	
Comment: POWDER COATING Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3		M105914 07/12/12 (1X)	
23.0	HAND FINISHING1	HAND FINISHING RESOURCE #1 	
Comment: HAND FINISHING RESOURCE #1 Wing Walk per Dwg D2351 and QSI 005 4.4 Batch: M106332		07/12/12 (1X)	
24.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION 	
Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION		07/12/13 (1)	
25.0	PACKAGING 1	PACKAGING RESOURCE #1 	
Comment: PACKAGING RESOURCE #1 Pick Packing Kit		N/A step welding only N/C	
26.0	D22301	Mounting Lug 	
Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)		4	
Pick: Packing Kit Qty Part Number Description Batch			
1 D22301 Mounting Lug			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Date: Monday, 12/10/2007 12:05:20 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 36239

Part Number: D350591122

Job Number:



Seq. #:

Machine Or Operation:

Description :

27.0

D22303

Mounting Lug



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch
1 D2230-3 Mounting Lug _____

28.0

D2856400

Abrasion Strip



Comment: Qty.: 0.6000 f(s)/Unit Total : 0.6000 f(s)

Pick:

Packing KitQtyPart Number Description Batch
1 D2856-400 7.20" Abrasion Strip _____

29.0

AN337A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch
2 AN3-37A Bolt _____

30.0

AN413A

Bolt



Comment: Qty.: 3.0000 Each(s)/Unit Total : 3.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch
3 AN4-13a Bolt _____

31.0

AN960JD10

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch
4 AN960JD10 Washer _____

32.0

AN960JD416

Washer



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch
6 AN960JD416 Washer _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/10/2007 12:05:20 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 36239

Part Number: D350591122

Job Number:



Seq. #: Machine Or Operation:

Description :

33.0 MS21042L3 Nut



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch

2 MS21042L3 Nut (or -3) _____

34.0 MS21042L4 Nut



Comment: Qty.: 3.0000 Each(s)/Unit Total : 3.0000 Each(s)

Pick:

Packing KitQtyPart Number Description Batch

3 MS21042L4 Nut (or -4) _____

35.0 QC4 INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

36.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-591-122

Location: _____

PPP Rev: _____

37.0 QC21 FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

① 12/10/13

Job Completion



12/10/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN KE	DRAWN BY <i>PH</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>##</i>	APPROVED <i>##</i>	DRAWING NO. D2351	REV. E SHEET 1 OF 2
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY NTS	
A	95.02.15	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	98.12.17	CHANGED TO BEND, D2850 REPLACES D2357 & D2358, INCORP. DEO 9084	
E	05.11.14	UPDATE FINISHING NOTE	

D2351 HIGH FLOAT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY -041	QTY -042
D2351-041	High Float Step Assembly (LH)	X	
D2351-042	High Float Step Assembly (RH)		X
D2244-55.4	STEP EXTRUSION*	1	1
D2582	STEP LEG ASSEMBLY	1	1
D2673-34	STEP END PLATE	1	1
D2850-1	END BRACKET	1	
D2850-2	END BRACKET		1
MS20600AD4W3	RIVETS	16	16

*cut per drawing

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *30231*

RELEASED
05.11.28

UNDER REVIEW

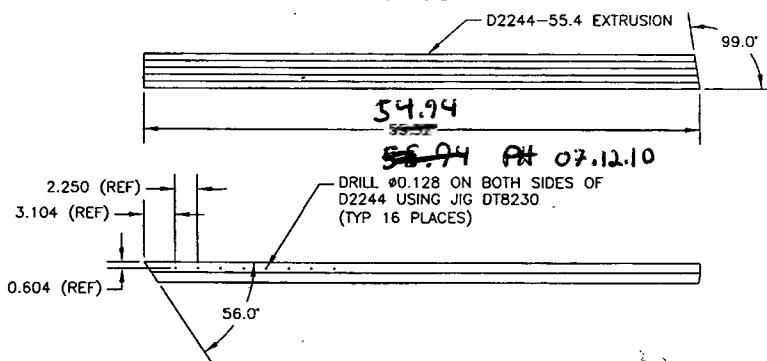
07.11.29
PUR 1124263

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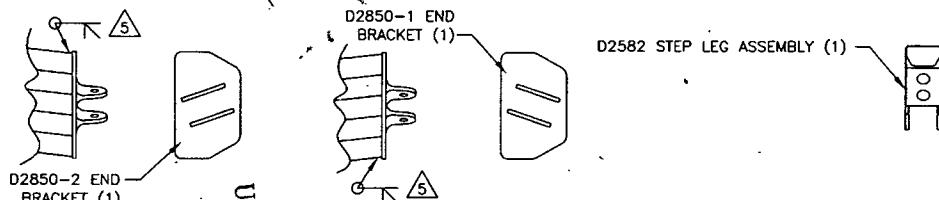
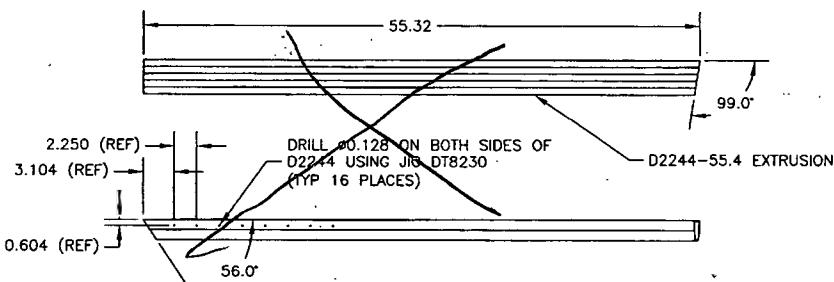
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D2351-2 CUTTING/DRILLING DETAIL
RIGHT STEP



D2351-1 CUTTING/DRILLING DETAIL
LEFT STEP



DETAIL A

SCALE: 1:4

DETAIL B

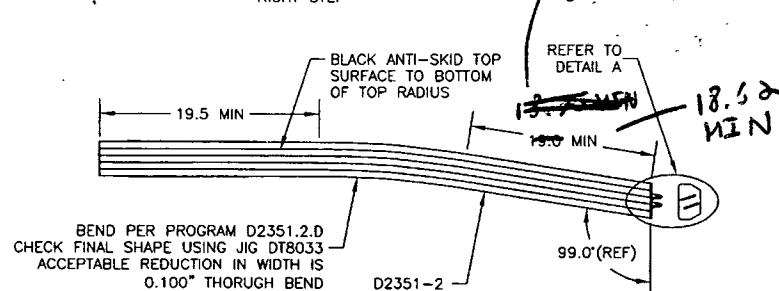
SCALE: 1:4

GENERAL NOTES

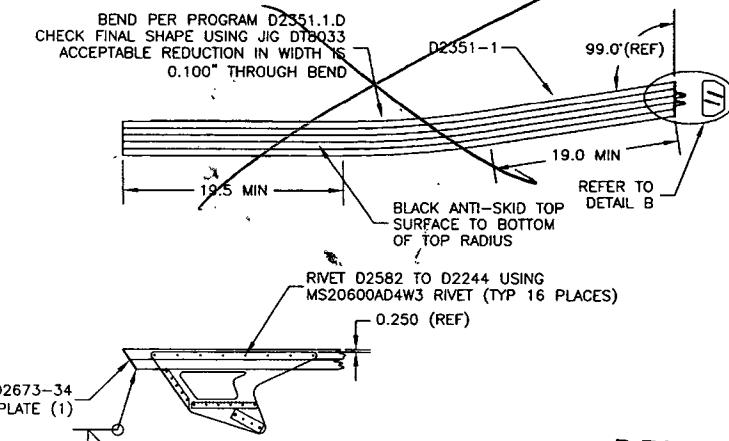
- 1) WELD PER DART QSI 004
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

5) CHAMFER D2244 EXTRUSION 0.075" x 45° BEFORE WELDING D2850-1 OR D2850-2 IN PLACE. DO NOT GRIND FLUSH.

D2351-042 BENDING/ASSEMBLY DETAIL
RIGHT STEP



D2351-041 BENDING/ASSEMBLY DETAIL
LEFT STEP



RELEASED
05.11.14

UNDER REVIEW
05.11.14

DART AEROSPACE LTD.

HAMMERSLEY, ONTARIO, CANADA

REV. E
SHEET 2 OF 2

SCALE
1:12

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DESIGN
KE

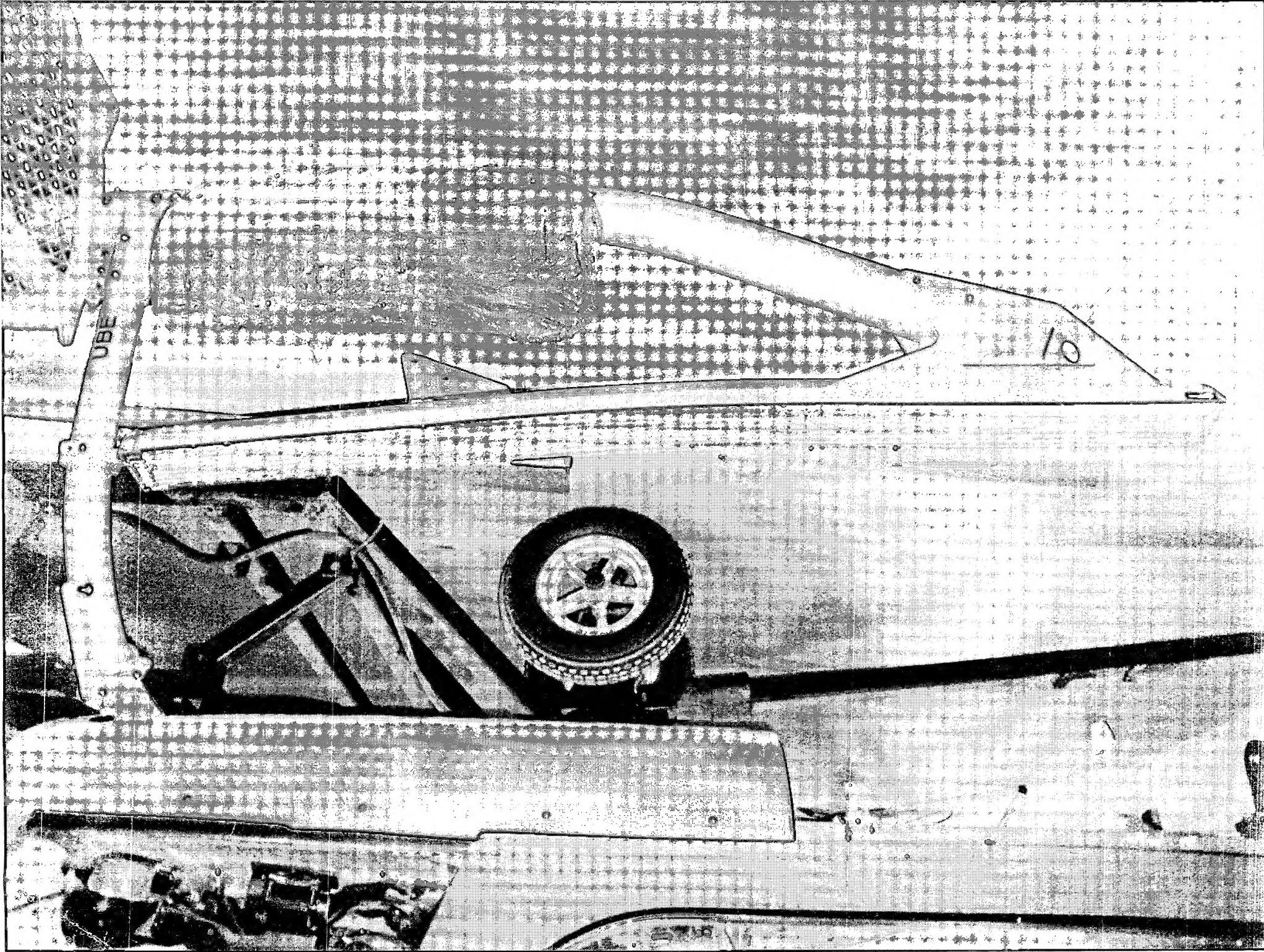
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PH

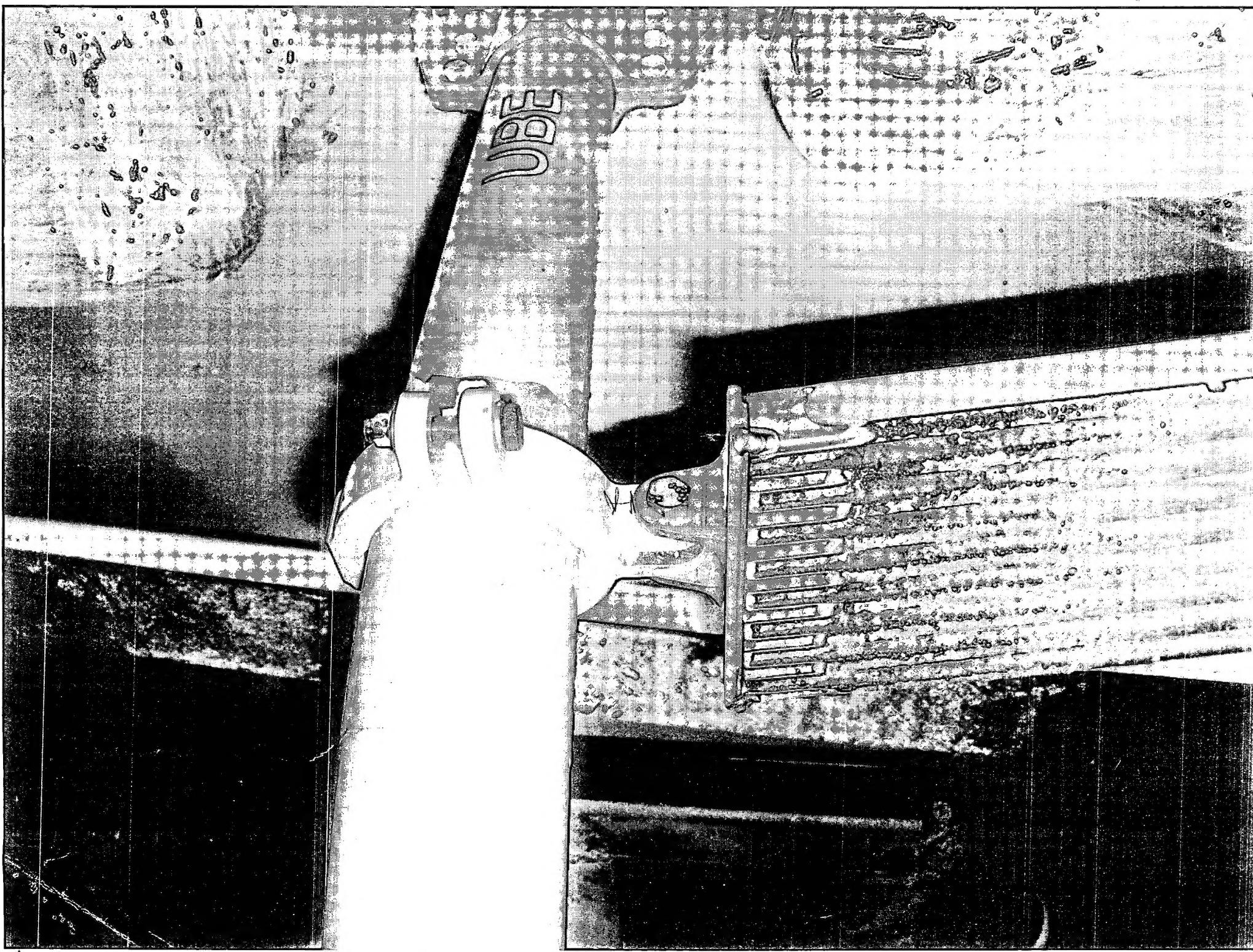
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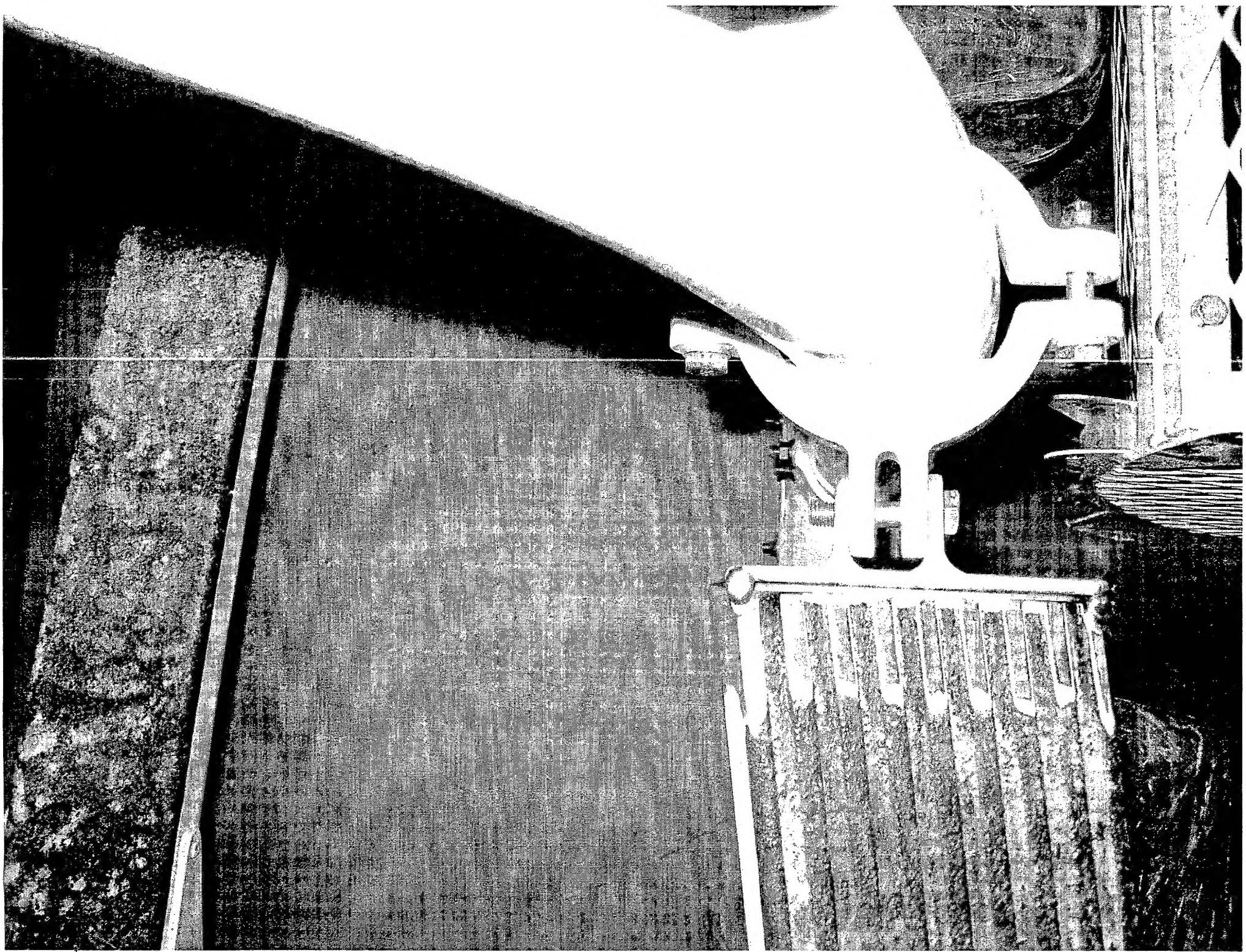
DATE
05.11.14

TITLE
HIGH FLOAT STEP ASSEMBLY

UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
3629







Date: Monday, 12/10/2007 12:05:20 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services
 Job Number : 36239
 Estimate Number : 11999
 P.O. Number :
 This Issue : 12/10/2007 S.O. No. :
 Prsht Rev. : NC
 First Issue : / / Type : LARGE FAB ASSY
 Previous Run : 35288
 Written By :
 Checked & Approved By : 7/12/10
 Comment : Est Rev:E 02.10.21 Re-format; Incorporated D2351-041 IPP K
 J/RF

Drawing Name : SHORT STEP ASSEMBLY
 Part Number : D350591122
 Drawing Number : D2351 UNDER REVIEW
 Project Number : N/A
 Drawing Revision : E
 Material :
 Due Date : 12/12/2007 Qty: 1 Um: Each

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	DC	DOCUMENT CONTROL 
Comment: DOCUMENT CONTROL Photocopy bluefile and type labels as per PPP D350-591-122 CHG003		
2.0	D2244116	Step Extrusion 
Comment: Qty.: 0.5000 Each(s)/Unit Total : 0.5000 Each(s) Pick: Qty Part Number Description Batch 0.5 D2244-116 Extrusion		
3.0	LARGE FAB 1	LARGE FABRICATION RESOURCE 1 
Comment: LARGE FABRICATION RESOURCE 1 1-Cut D2244-128 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G 2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.		
4.0	QC5	INSPECT WORK TO CURRENT STEP 
Comment: INSPECT WORK TO CURRENT STEP		
5.0	BENDING	BENDING MACHINE 
Comment: BENDING MACHINE Bend as per dwg		